

## A forgotten scorpion: the identity of *Buthus flavicruris* Rainbow, 1896 (Scorpiones), with notes on *Urodacus manicatus* (Thorell)

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William J. Rainbow (1856–1919), whilst entomologist at the Australian Museum, Sydney, published a series of papers on the arachnid fauna of Australia and nearby regions. By modern standards these papers are generally imperfect but, to his credit, Rainbow illustrated the somatic and genitalic features of many of these species, a custom which was not yet firmly established amongst his contemporary arachnologists. One of these papers (Rainbow, 1896) contained the description of a new species of scorpion, *Buthus flavicruris* Rainbow, based upon a specimen collected from Cooma, New South Wales. This species was not cited by Koch (1977) or Fet *et al.* (2000), and appears to have been completely overlooked since the publication of the paper. The specimen cannot be found amongst the collections of the Australian Museum, Sydney (Mr G. Milledge, pers. comm.), and is considered lost.

Rainbow's (1896) figures, although somewhat rudimentary, clearly demonstrate that the species is not a member of the genus *Buthus*, or even of the Buthidae, but of a species of *Urodacus* (Urodacidae). The only *Urodacus* species found in that part of south-eastern Australia is *U. manicatus* (Thorell), which was redescribed and illustrated by Koch (1977). The description and illustrations of *B. flavicruris* match those of *U. manicatus* moderately well, although Rainbow's (1896) illustration of the metasoma of *B. flavicruris* (Rainbow, 1896, figure 4a) shows slightly more strongly developed dorsal keels than those of *U. manicatus* illustrated by Koch (1977). This discrepancy is probably due to Rainbow's sketchy style of illustration, rather than any real differences within the Cooma population. The dimensions quoted by Rainbow are well within the range of variation found in *U. manicatus*, as is the number of pectinal teeth – 16 – which indicates that Rainbow's specimen was probably a male.

We have no hesitation in placing *B. flavicruris* as a synonym of *U. manicatus* (new synonymy), despite the slight discrepancies between the published illustrations as noted above.

*Urodacus manicatus* is widespread throughout south-eastern Australia, ranging as far north as

southern Queensland and as far west as the Flinders Ranges, South Australia. Although *U. manicatus* has been recorded twice from Western Australia, we consider these records to be incorrect. Pocock (1891) suggested that the two specimens from Western Australia described by Keyserling (1885) under the name *U. novaehollandiae* Peters were misidentified, and he proposed the name *U. keyserlingii* for the specimens. He later (Pocock, 1893) placed *U. keyserlingii* in the synonymy of *U. abruptus*. If this synonymy is correct, then we doubt the locality given for Keyserling's specimens.

The only other record of *U. manicatus* in Western Australia is that by Harvey (1981) from Madura. However, reexamination of these specimens shows that they represent *U. novaehollandiae*, a species which is commonly found along the southern edge of the Nullarbor Plain (Koch, 1977).

We therefore consider that *U. manicatus* does not occur in Western Australia, and is restricted to south-eastern Australia as depicted by Koch (1977). *Urodacus manicatus* – under the name *U. abruptus* Pocock – has been the subject of ecological and behavioural studies (Smith, 1966; Southcott, 1955), making it one of the better known of all Australian scorpions. It is commonly found on the slopes of the southern highlands of New South Wales and Victoria where it constructs shallow burrows under rocks and, less often, under logs (Smith, 1966). We here provide the primary synonymy of the species, based upon the list provided by Fet *et al.* (2000).

### *Urodacus manicatus* (Thorell)

*Ioctonus manicatus* Thorell, 1876: 14–15. Type locality: Australia (as "New Holland").

*Urodacus abruptus* Pocock, 1888: 174–175, figs 4, 4a. Type localities: Adelaide, South Australia; and Australia (as "New Holland").

*Urodacus keyserlingii* Pocock, 1891: 245. Type locality: Western Australia, but probably incorrect (see above).

*Buthus flavicruris* Rainbow, 1896: 634. Type locality: Cooma, New South Wales. **New synonymy.**